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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,992	08/08/2000	Kenji Imura	44319-053	4066

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EXAMINER

NGUYEN, MICHELLE P

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,992

Applicant(s)

IMURA, KENJI

Examiner

Michelle Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "a storage device for storing an approximate function having an angle of an illuminating direction with respect to a reference direction as a variable if the reference direction is a direction symmetrical with the specific direction with respect to a center axis of the main body in parallel to a normal to the opening, and having a plurality of undetermined coefficients including an angle of inclination of the center axis of the main body with respect to a normal to the surface of the object" in lines 15-22. The limitation does not set forth an alternative to the condition, thereby rendering the claim vague and indefinite. The term "if" further renders the claim indefinite because it is unclear whether the limitations following the term "if" are part of the claimed invention.

Claims 2-9 include all limitations set forth in claim 1.

For reasons in connection with claim 1 as discussed above, claims 10, 16 and 25 are considered to be vague and indefinite.

Claims 11-15 include all limitations set forth in claim 10.

Claims 17-24 include all limitations set forth in claim 16.

Claims 26-28 include all limitations set forth in claim 25.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following rejections rely on references applied to the claims as best understood (see above discussion with respect to 35 U.S.C. 112, second paragraph).

5. Claims 1-6, 9-12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,917,495 to Steenhoek.

With regard to claims 1-6 and 9, Steenhoek discloses a measurement apparatus (colorimeter 10) for measuring color of an object, comprising:

a main body (see Fig. 3) having an opening (port 37) opposed to an object (sample surface 14) to be measured (see Figs. 3, 5, 7);

a plurality of illuminators (illumination source lamps 11a, 11b, 11c) for illuminating a surface of the object in directions different from one another (see Fig. 1);

a light detector (detector 18) for detecting reflected light in a specified direction from the object illuminated by the plurality of illuminators and outputting light detection signals corresponding to light intensities (see Col. 4, lines 6-10, Col. 8, line 64 to Col. 9, line 16, Fig. 1);

a first calculator (microcomputer 29) for calculating reflection characteristic measurement values of the measurement object in correspondence with the plurality of illuminators based on the light detection signals (see Col. 8, line 64 to Col. 9, line 16);

a storage device (microcomputer 29) (see Col. 6, lines 42-6); and

a second calculator for determining a plurality of undetermined coefficients based on the respective reflection characteristic measurement values and the angles of the illuminating directions (see Col. 8, line 64 to Col. 9, line 16).

Steenhoek further teaches the reflection characteristic to be a spectral reflection characteristic dependent on wavelength (see Col. 2, lines 37-56, Col. 4, lines 6-10).

With regard to claims 10-12 and 15, Steenhoek discloses a measurement apparatus (colorimeter 10) for measuring color of an object, comprising:

a main body (see Fig. 3) having an opening (port 37) opposed to an object (sample surface 14) to be measured (see Figs. 3, 5, 7);

a plurality of illuminators (illumination source lamps 11a, 11b, 11c) for illuminating a surface of the object in directions different from one another (see Fig. 1);

a light detector (detector 18) for detecting reflected light in a specified direction from the object illuminated by the plurality of illuminators and outputting light detection signals corresponding to light intensities (see Col. 4, lines 6-10, Col. 8, line 64 to Col. 9, line 16, Fig. 1); and

a calculator (microcomputer 29) for calculating a reflection characteristic of the object (see Col. 8, lines 64 to Col. 9, line 16).

Steenhoek further teaches the reflection characteristic to be a spectral reflection characteristic dependent on wavelength (see Col. 2, lines 37-56, Col. 4, lines 6-10).

6. Claims 16-21, 24, 25 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,583,642 to Nakazono.

With regard to claims 16-21 and 24, Nakazono discloses a measurement apparatus for measuring color of an object, comprising:

a main body having an opening opposed to an object (sample coating S) to be measured (see Fig. 1; Although a main body is not shown explicitly, it is understood that the measuring device shown schematically is housed within a main body; Although an opening is not shown explicitly, it is understood that the measuring device comprises an opening so that light emerging from the device may be incident on the sample coating S.);

an illuminator (light source 10) for illuminating a surface of the object in a specific direction (45 degrees from the normal to the sample coating S) (see Col. 4, lines 5-8, Fig. 1);

a plurality of light detectors (sensors 12, 14, 16) for detecting reflected light in directions different from one another from the object illuminated by the illuminator and outputting light detection signals corresponding to light intensities (see Col. 4, line 66 to Col. 5, line 6, Fig. 1);

a first calculator for calculating reflection characteristic measurement values of the object in correspondence with the plurality of light detectors based on the

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light detection signals (see Col. 5, lines 2-6; Although a calculator is not taught explicitly, it is understood that the determinations of values discussed are made by a calculator.);

a storage device (see Col. 4, line 66 to Col. 5, line 6; Although a storage device is not taught explicitly, it is understood that the measuring device comprises a storage device for storing values used for calculations.); and

a second calculator for determining a plurality of undetermined coefficients based on the respective reflection characteristic measurement values and the angles of the light detecting directions (see Col. 5, lines 7-24; Although a calculator is not taught explicitly, it is understood that the determinations of values discussed are made by a calculator.).

Nakazono further teaches the reflection characteristic to be a spectral reflection characteristic dependent on wavelength (see Col. 5, lines 2-24).

With regard to claims 25 and 28, Nakazono discloses a measurement apparatus (measuring device) for measuring color of an object, comprising:

a main body having an opening opposed to an object (sample coating S) to be measured (see Fig. 1; Although a main body is not shown explicitly, it is understood that the measuring device shown schematically is housed within a main body; Although an opening is not shown explicitly, it is understood that the measuring device comprises an opening so that light emerging from the device may be incident on the sample coating S.);

an illuminator (light source 10) for illuminating a surface of the object in a specific direction (45 degrees from the normal to the sample coating S) (see Col. 4, lines 5-8, Fig. 1);

a plurality of light detectors (sensors 12, 14, 16) for detecting reflected light in directions different from one another from the object illuminated by the illuminator and outputting light detection signals corresponding to light intensities (see Col. 4, line 66 to Col. 5, line 6, Fig. 1); and

a calculator for calculating a reflection characteristic of the object (see Col. 5, lines 7-24; Although a calculator is not taught explicitly, it is understood that the calculations discussed are performed by a calculator).

Nakazono further teaches the reflection characteristic to be a spectral reflection characteristic dependent on wavelength (see Col. 5, lines 2-24).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7-8 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steenhoek as applied to claims 1 and 10 above, respectively, and further in view of U.S. Patent No 5,706,083 to Iida et al.

Steenhoek teaches each of the plurality of illuminators as discussed above with respect to claims 1 and 10, respectively, to include a light source (light source 10) (see

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Fig. 1). Steenhoek does not teach each of the plurality of illuminators to include a beam restricting plate or a collimator lens. However, lida et al. teach that it is well known in the art to employ an illuminator that includes a beam restricting plate having an opening (slit 12) through which a beam from a light source (lamp 11) passes (see Fig. 9).

Further, lida et al. teach that it is well known in the art to employ an illuminator that includes a collimator lens (lens 13) for converging the beam having passed through the opening, the opening being located in vicinity of a focusing position of the collimator lens and having a rectangular shape (see Fig. 9). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add to each of the plurality of illuminators of Steenhoek a beam restricting plate and a collimator lens as taught by lida et al. for reducing the leakage of light, thereby further intensifying the light, and for making the light more uniform.

lida et al. do not teach the beam restricting plate to have first and second openings through which a beam from the light source passes. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide two openings in the beam restricting plate of lida et al. since mere duplication of essential working parts of a device involves only routine skill in the art. Further, a plurality of holes allows for a plurality of beams of uniform intensity to be emitted at predetermined spaces, which therefore allows for further control of the light.

9. Claims 22-23 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazono as applied to claims 16 and 25 above, respectively, and further in view of U.S. Patent No 5,706,083 to lida et al.

Nakazono teaches the illuminator as discussed above with respect to claims 16 and 25, respectively, to include a light source (light source 10) (see Fig. 1). Nakazono does not teach the illuminator to include a beam restricting plate or a collimator lens. However, Iida et al. teach that it is well known in the art to employ an illuminator that includes a beam restricting plate having an opening (slit 12) through which a beam from a light source (lamp 11) passes (see Fig. 9). Further, Iida et al. teach that it is well known in the art to employ an illuminator that includes a collimator lens (lens 13) for converging the beam having passed through the opening, the opening being located in vicinity of a focusing position of the collimator lens and having a rectangular shape (see Fig. 9). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add to the illuminator of Nakazono a beam restricting plate and a collimator lens as taught by Iida et al. for reducing the leakage of light, thereby further intensifying the light, and for making the light more uniform.

Iida et al. do not teach the beam restricting plate to have first and second openings through which a beam from the light source passes. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide two openings in the beam restricting plate of Iida et al. since mere duplication of essential working parts of a device involves only routine skill in the art. Further, a plurality of holes allows for a plurality of beams of uniform intensity to be emitted at predetermined spaces, which therefore allows for further control of the light.

Examiner Comments

10. Authorization for an examiner's amendment was given in a telephone interview with Ed Wise on April 1, 2003. The amendment as discussed includes changing each instance of "specific direction" to --specified direction-- throughout the claims.

This amendment has not been made. Applicant may wish to include the appropriate changes in a response to this Office action.

Conclusion

11. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 4,479,718 to Alman

U.S. Patent No. 5,151,751 to Nakajima, deceased et al.

U.S. Patent No. 5,477,438 to Nakata et al.

U.S. Patent No. 5,963,334 to Yamaguchi et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Nguyen whose telephone number is 703-305-2771. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

mpn
April 3, 2003


RUSSELL ADAMS
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